Information Paper – Extract from IC-ENC Technical Conference 04 Report – High Density Bathymetry ENCs

Submitted by:	IC-ENC General Manager
Executive Summary:	This paper provides WENDWG10 with an extract from the Report of the IC-ENC Technical Conference 04 (TC04), Panama, October 2019. It describes two presentations from IC-ENC members (Australia and Belgium) on their approach to High Density Bathymetry ENCs (HD ENCs), and summarises the subsequent discussion at the TC04.
Related Documents:	N/A
Related Projects:	N/A

Introduction / Background

1. Compilation of high density bathymetry ENCs is in progress/under consideration by a range of ENC producers. This paper provides WENDWG10 with an extract from the Report of the IC-ENC Technical Conference 04, Panama, October 2019. It describes two presentations from IC-ENC members (Australia and Belgium) on their approach to High Density Bathymetry ENCs (HD ENCs), and summarises the subsequent discussion.

2. This information paper is a contribution to the High Density Bathymetry ENC discussion at WENDGW10 under agenda item 03D.

Analysis/Discussion –

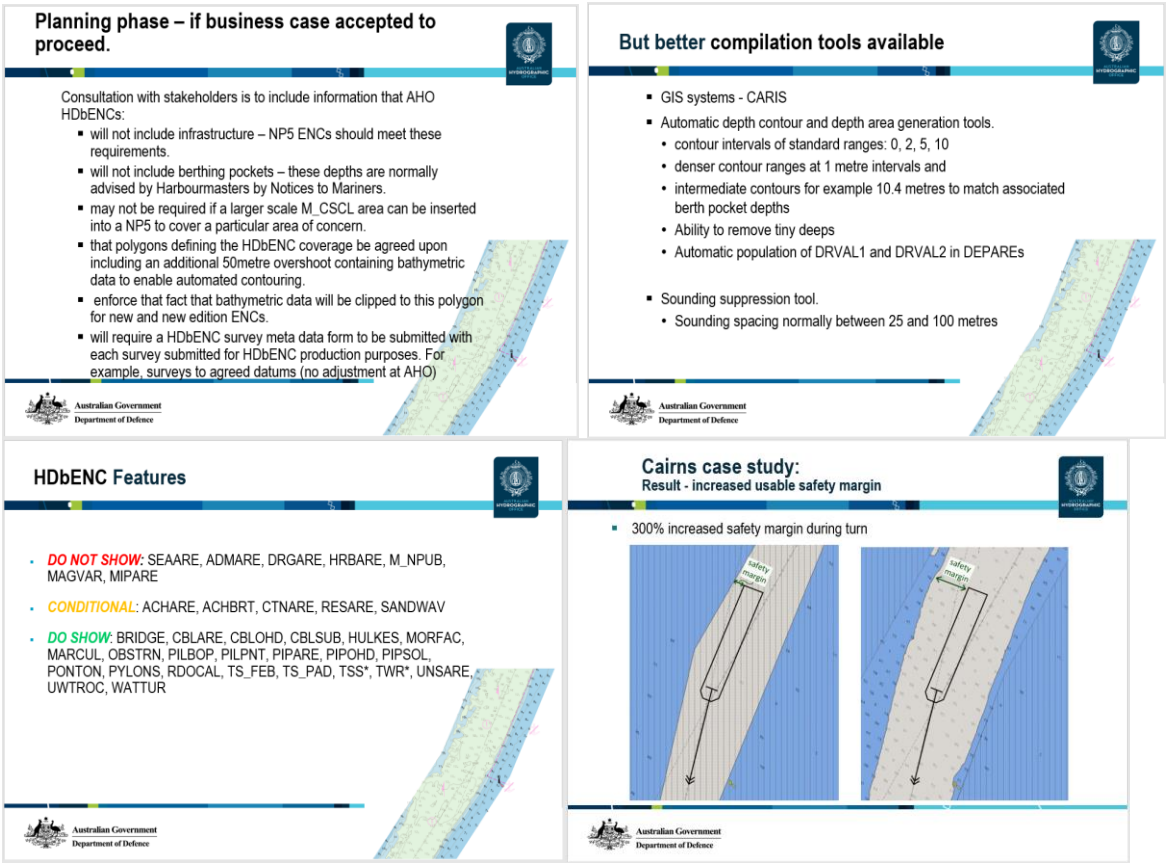
3. IC-ENC Technical Conference 04 Report Extract:

2.1.2 HD ENC

2.1.2.1 High Density Bathymetric ENC – AU

AU presented to members their experience producing HDbENCs, AHS currently produce 6 HDbENCs. Each HDbENC are based on collaboration between AHS and the requesting Port Authority, the Port Authority must supply a business case for each HDbENC before production and consideration is given to identifying if existing coverage can be modified without the need for the new product. AHS targets to complete the HDbENC within 2 weeks of survey receipt, to facilitate this, surveys must be supplied to an agreed standard enabling minimal manual compilation effort from AHS.

AU HDbENCs cover a predefined area and only show features deemed critical to navigation. AU use automation to aid in HDbENC compilation, including automatic depth area generation and sounding suppression tools. AU noted that where the ECDIS overlays the usage band 6 HDbENC over the existing coverage some features are obscured, AU highlighted light sector lines, to overcome this issue AU capture small areas around key features so they are included on the largescale coverage.



Chair thanked AU for the insightful presentation which provided a good case study of HDbENCs and demonstrated the value to shipping.

DE questioned if the ENCs are official given the ENCs do not follow the S-57 guidance by omitting features, noting the change between DEPARE and DRGARE. AU responded that the ENCs are official ENCs and distributed through IC-ENC, the additional bathymetric information on the HDbENC negates the requirement to capture the DRGARE. AU continued to explain that SCAMIN is used on the DEPCNTs within the ENC, standard DEPCNT follow the S-57 recommendations whilst the supplementary DEPCNTs are assigned a value 1 greater than the compilation scale. AU states this is possible because the additional DEPAREs are for the generation of the ECDIS safety contour.

DE questioned if the HDbENCs are created in dynamic seabed areas. AU states that the agreement on survey frequency is agreed with the harbour master, this would consider the frequency of change within the area, AU suggest they would be unable to produce HDbENCs quicker than the 2 weeks currently used. In some cases, the survey is conducted prior to a vessel arriving at the port to enable the ENC to be updated.

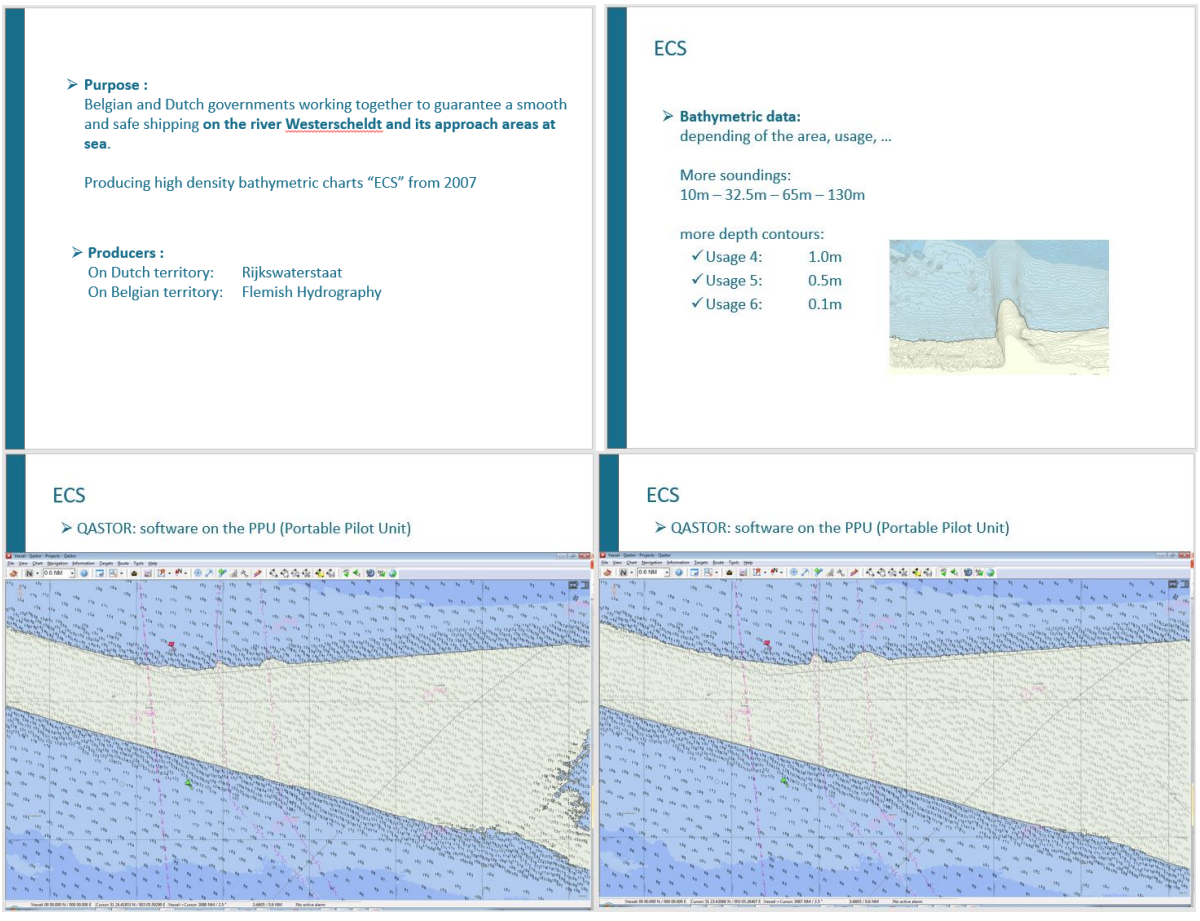
MT and NZ queried the use of automatically generated DEPCNTs and the creation of excess vertices within the ENC, AU responded that the use of automated DEPCNTS aids compilation and reduces the time to make the ENC, the automated software contain algorithms to ensure vertex density limits are not exceeded.

ES queried if the use of non-standard DEPCNT values could lead to confusion. AU states that the values are primarily for the use of the ECDIS to produce the safety contour, in addition, the primary users of the ENC will be the local port pilots who are familiar with the product and involved from the beginning of the process.

2.1.2.2 High Density Bathymetric Charts – BE

BE presented to members their experience producing High Density Bathymetric Charts on the North Sea and the River Westerscheldt to ensure safe shipping in the approaches to the ports of Zeebrugge and Antwerp – in cooperation with the Netherlands. The charts are only available to the pilots through an ECS on a Portable Pilot Unit as an additional product to the ENCs.

The charts are updated after every survey with new editions produces within 7 working days of the survey. The bathymetric information within each chart is dependent on the area and usage; the largest scale charts have greater depth information, with a contour interval up to 0.1m.



Chair thanked BE for their presentation, stating this system appears to be very evolved. BE responded that the system has been in use since 2007 and now contains 650 charts. BE planning to use the experience with this product to integrate the 1m DEPCNTs into the official ENCs.

IT requested confirmation why BE decided to create these through the ECS instead of making official ENCs. BE stated that in the first instance these ENCs were not created to all the S-58 rules but for the ECS PPU system, they may therefore have some topological errors found during a full validation. In addition, using the ECS BE can include additional information that is only required by the pilots. With the quick production time of new editions, it may not be suitable for mariners to upload the regular new editions to their ECDIS systems. DE confirmed that where regular surveys take place it is not possible to distribute to the mariner before the data is superseded.

PCA queried what the maximum file size and geographic extent for each ENC is? BE was unsure of the sizes of each chart but will confirm to TC.

ACTION TC04/04: BE to confirm the geographic extent and file size of each ENC to be reported to TC delegates.

ACTION TC04/05: IC-ENC to explore the opportunities presented by high density bathymetry ENCs -

- Harmonisation/best practice production techniques
- Timeliness of distribution (some are made in areas of high frequency change, standard validation and weekly release may not be appropriate)
- Potential new licensing model requirements

Conclusions

4. N/A

Recommendations

5. N/A

Justification and Impacts

6. N/A

Action Required of the WENDWG

7. The WENDWG is invited to:
   a. note this information paper as a contribution to the High Density Bathymetry ENC discussion.